National Institute of Environmental Health Sciences

Seroprevalence and national distribution of human toxoplasmosis in Mexico: Analysis of the 2000 and 2006 National Health Surveys

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Abstract:

Global warming has had serious implications on dispersion of infectious diseases like toxoplasmosis. Since the frequency of Toxoplasma gondii largely depends on climatic conditions, we studied its prevalence by means of 3599 samples of the National Health Survey 2000 (NHS-2000) and 2916 of the National Health and Nutrition Survey 2006 (NHNS-2006) serum banks, obtained from 1-98 year old subjects of both genders and all states of Mexico. Anti-T.gondii IgG antibodies were determined by ELISA and confirmed by western blot. Crude, epidemiologically weighted and diagnosis-performance-adjusted prevalence values were calculated. Seroprevalence changes were compared between both surveys and among regions (north, center and coast). Also, correlations between changes in temperature or humidity and those in prevalence were measured. National crude prevalence was 60.1% and 62.6% for NHS-2000 and NHNS-2006, respectively. Weighted and adjusted values were 62.5% and 40.0% for NHS-2000, and 63.7 and 43.1% for NHNS-2006. Coastal states and children presented the largest increases between surveys, while the center of the country showed a decrease. An apparently higher prevalence of T. gondii infection was observed in both surveys compared to that performed in 1987, while a geographical re-distribution was found from 2000 to 2006, with a positive correlation between temperature and frequency deltas in 21 states where prevalence increased.

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Resource Description

Exposure :

weather or climate related pathway by which climate change affects health

Temperature

Temperature: Fluctuations

Geographic Feature:

resource focuses on specific type of geography

Ocean/Coastal

Geographic Location: ☑

resource focuses on specific location

Non-United States

Non-United States: Non-U.S. North America

Health Impact: ☑

specification of health effect or disease related to climate change exposure

Infectious Disease

Infectious Disease: Foodborne/Waterborne Disease, Zoonotic Disease

Foodborne/Waterborne Disease (other): Toxoplasmosis

Zoonotic Disease: Other Zoonotic Disease

Zoonotic Disease (other): Toxoplasmosis

Population of Concern: A focus of content

Population of Concern: ☑

populations at particular risk or vulnerability to climate change impacts

Children

Resource Type: ☑

format or standard characteristic of resource

Research Article

Timescale: ☑

time period studied

Time Scale Unspecified